

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 September 2004 (10.09.2004)

PCT

(10) International Publication Number
WO 2004/075944 A3

(51) International Patent Classification⁷: **A61M 25/00**,
A61L 29/12, 29/16, 29/08, 31/12

(21) International Application Number:
PCT/DK2004/000129

(22) International Filing Date: 26 February 2004 (26.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PA 2003 00296 26 February 2003 (26.02.2003) DK
PA 2003 00298 26 February 2003 (26.02.2003) DK

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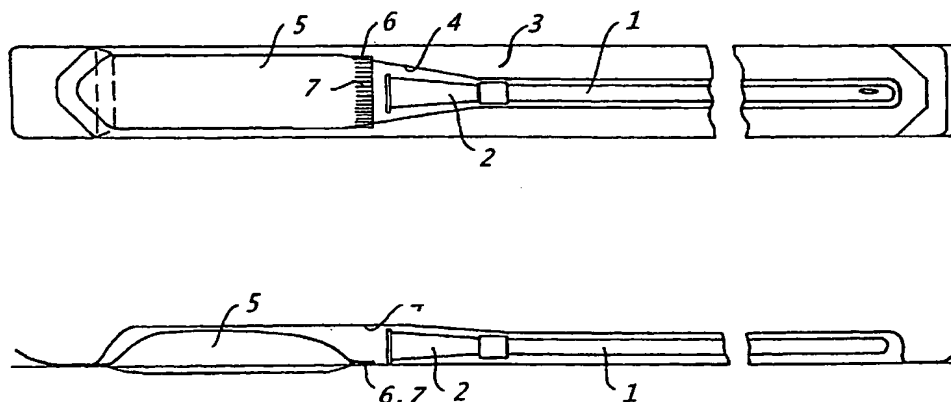
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(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: A MEDICAL DEVICE HAVING A COATING COMPRISING HYDROGEN PEROXIDE AND PACKAGE THERE-
FORE



(57) Abstract: The present invention provides an assembly for the preparation of a medical device having a porous coating comprising hydrogen peroxide. Particularly interesting medical devices are catheters (such as urinary catheters), endoscopes, laryngoscopes, tubes for feeding, tubes for drainage, guide wires, condoms, urisheaths, barrier coatings e.g. for gloves, stents and other implants, extra corporeal blood conduits, membranes e.g. for dialysis, blood filters, devices for circulatory assistance, dressings for wound care, and ostomy bags. The coating is in particular a hydrophilic coating formed from cross-linked polyvinylpyrrolidone. In one embodiment, the assembly holds a dry catheter element in one compartment of a package and an aqueous hydrogen peroxide solution in another compartment. The solution may also comprise stabilizers, e.g. chelators, and osmolality increasing agents. The catheter for insertion in the urethra is useful for the treatment, alleviation or prophylaxis of microbial infections such as urinary tract infections (UTI).

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Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
13 January 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/DK2004/000129

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61M25/00 A61L29/12 A61L29/16 A61L29/08 A61L31/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61M A61L A61F C11D C08L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 515 593 A (NORTON) 7 May 1985 (1985-05-07) column 2, line 51 - column 3, line 39 column 4, line 7 - line 59; figure 1	1-6,8,11
Y	WO 99/65538 A (OXIBIO INC.) 23 December 1999 (1999-12-23) page 5, line 21 - line 28 page 7, line 29 - page 8, line 1 page 9, line 3 - page 10, line 7 page 11, line 23 - page 13, line 13 page 44, line 16 - page 46, line 2; claims 1,2; figures 10-12	1,2

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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
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- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

19 November 2004

Date of mailing of the international search report

02 DEC 2004

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/DK2004/000129

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 98/11932 A (NOESTED ULRIK ;COLOPLAST AS (DK); KAYEROED HELLE (DK); TANGHOEJ AL) 26 March 1998 (1998-03-26) cited in the application abstract page 3, line 13 - page 4, line 26; figures 7-16	1-3,6,11
X	WO 02/26277 A (NOVARTIS ERFIND VERWALT GMBH ;NOVARTIS AG (CH); TSAO FU PAO MARK) () 4 April 2002 (2002-04-04)	7
Y	page 1, line 1 - line 4 page 1, line 10 - page 2, line 16 page 8, line 19 - line 28	4-6,8,11
Y	US 6 203 536 B1 (BERG ERIC P ET AL) 20 March 2001 (2001-03-20) column 2, line 65 - column 3, line 7 column 3, line 49 - column 4, line 13 column 6, line 39 - line 63	1-6,8,11
X	US 5 951 458 A (UNGS MARK T ET AL) 14 September 1999 (1999-09-14) column 3, line 24 - line 42 column 16, line 66 - column 17, line 32 column 18, line 26 - line 41; figures	8,11
A	DE 41 42 319 A (HENKEL KGAA) 24 June 1993 (1993-06-24) abstract	7
A	US 3 307 910 A (ANDRE RYCKAERT ET AL) 7 March 1967 (1967-03-07) the whole document	7
A	GB 409 361 A (ROESSLER & HASSLACHER CHEMICAL) 30 April 1934 (1934-04-30) the whole document	7
A	WO 89/04674 A (BIOCON OY) 1 June 1989 (1989-06-01)	
A	US 5 357 636 A (DANGMAN ET AL.) 25 October 1994 (1994-10-25)	
A	US 5 882 526 A (BROWN GEOFFREY A ET AL) 16 March 1999 (1999-03-16)	
A	US 5 130 124 A (GARELICK PAUL ET AL) 14 July 1992 (1992-07-14) cited in the application	
A	US 5 312 619 A (SHIH JENN S ET AL) 17 May 1994 (1994-05-17)	

Form PCT/ISA/210 (continuation of second sheet) (January 2004)

page 2 of 2

INTERNATIONAL SEARCH REPORT

national application No.
PCT/DK2004/000129

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 9, 10
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6,8,11

In combination:

- a medical device having a porous polymer coating
- a liquid
- a hydrogen peroxide source
- a package for said medical device

2. claim: 7

The composition of an antimicrobial liquid

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 9,10

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/UK2004/000129

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4515593	A	07-05-1985	AU 8984782 A	07-07-1983
			BR 8206825 A	04-10-1983
			CA 1188184 A1	04-06-1985
			DE 3247548 A1	07-07-1983
			ES 267885 Y	16-11-1983
			FR 2519256 A1	08-07-1983
			GB 2112647 A ,B	27-07-1983
			IT 1154591 B	21-01-1987
			JP 58118765 A	14-07-1983
			NL 8203912 A	18-07-1983
			SE 8205604 A	01-10-1982
WO 9965538	A	23-12-1999	AT 246522 T	15-08-2003
			AU 4699799 A	05-01-2000
			CA 2335055 A1	23-12-1999
			CN 1306444 T	01-08-2001
			DE 69910210 D1	11-09-2003
			DE 69910210 T2	17-06-2004
			EP 1087800 A1	04-04-2001
			JP 2002518351 T	25-06-2002
			WO 9965538 A1	23-12-1999
WO 9811932	A	26-03-1998	DK 122496 A	19-03-1998
			AT 208643 T	15-11-2001
			AU 710581 B2	23-09-1999
			AU 4295397 A	14-04-1998
			CA 2265846 A1	26-03-1998
			CZ 9900917 A3	11-08-1999
			DE 69708305 D1	20-12-2001
			DE 69708305 T2	02-05-2002
			WO 9811932 A1	26-03-1998
			DK 923398 T3	04-03-2002
			EP 1145729 A1	17-10-2001
			EP 0923398 A1	23-06-1999
			ES 2165602 T3	16-03-2002
			HU 9903763 A2	28-03-2000
			JP 2001500414 T	16-01-2001
			NO 991120 A	08-03-1999
			PL 332545 A1	13-09-1999
			US 2001001443 A1	24-05-2001
			AT 188622 T	15-01-2000
			AU 710966 B2	30-09-1999
			AU 4295297 A	29-05-1998
			CA 2268243 A1	14-05-1998
			CZ 9901554 A3	13-10-1999
			DE 69701152 D1	17-02-2000
			DE 69701152 T2	28-09-2000
			WO 9819729 A1	14-05-1998
			EP 0935478 A1	18-08-1999
			GR 3032343 T3	27-04-2000
			HU 0000272 A2	28-05-2000
			JP 2001503295 T	13-03-2001
			NO 992029 A	28-04-1999
			PL 333278 A1	22-11-1999
			PT 935478 T	31-05-2000
			SI 935478 T1	30-04-2000
			US 6059107 A	09-05-2000

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inventor's Application No

PCT/UK2004/000129

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0226277	A	04-04-2002	AT 273033 T AU 9385101 A CA 2423201 A1 DE 60104872 D1 WO 0226277 A2 EP 1324782 A2 JP 2004509925 T US 2002127281 A1	15-08-2004 08-04-2002 04-04-2002 16-09-2004 04-04-2002 09-07-2003 02-04-2004 12-09-2002
US 6203536	B1	20-03-2001	DE 69807634 D1 DE 69807634 T2 EP 0920342 A2 WO 9857680 A2 US 2004111150 A1 US 2001002435 A1	10-10-2002 08-05-2003 09-06-1999 23-12-1998 10-06-2004 31-05-2001
US 5951458	A	14-09-1999	US 5855546 A US 6099454 A US 6234951 B1 US 5882290 A CA 2291092 A1 EP 0998329 A1 JP 2002503986 T WO 9855179 A1 US 6398708 B1 WO 9839052 A1 CA 2277856 A1 EP 1011787 A1 JP 2002513322 T WO 9942167 A2 US 6582353 B1 US 2001023308 A1	05-01-1999 08-08-2000 22-05-2001 16-03-1999 10-12-1998 10-05-2000 05-02-2002 10-12-1998 04-06-2002 11-09-1998 10-07-1998 28-06-2000 08-05-2002 26-08-1999 24-06-2003 20-09-2001
DE 4142319	A	24-06-1993	DE 4142319 A1 DE 59207556 D1 WO 9312657 A1 EP 0618768 A1 JP 7502518 T	24-06-1993 02-01-1997 08-07-1993 12-10-1994 16-03-1995
US 3307910	A	07-03-1967	CH 424735 A GB 1009099 A NL 6401922 A	30-11-1966 03-11-1965 07-09-1964
GB 409361	A	30-04-1934	NONE	
WO 8904674	A	01-06-1989	FI 875223 A AU 2711988 A EP 0351424 A1 WO 8904674 A1 JP 2502612 T	27-05-1989 14-06-1989 24-01-1990 01-06-1989 23-08-1990
US 5357636	A	25-10-1994	NONE	
US 5882526	A	16-03-1999	AU 7694498 A CA 2293557 A1 WO 9856721 A1 US 6149835 A ZA 9804580 A	30-12-1998 17-12-1998 17-12-1998 21-11-2000 18-01-1999

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/DK2004/000129

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5130124	A	14-07-1992	AU	2183092 A	21-12-1992
			CA	2107780 A1	02-11-1992
			EP	0583413 A1	23-02-1994
			JP	6507638 T	01-09-1994
			WO	9219230 A1	12-11-1992
<hr/>					
US 5312619	A	17-05-1994	AU	4113993 A	29-11-1993
			WO	9321931 A1	11-11-1993
<hr/>					